PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Applicants	:	John K. Alex et al.	
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Docket No.	:	POU920030134US1	
Customer No.	:	23334	

AMENDED APPEAL BRIEF

MS-APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Amended Appeal Brief is filed in response to a Notification Of Non-Compliant Appeal Brief dated June 3, 2010, the next business day being July 6, 2010. This Amended Appeal Brief is amending the Appeal Brief filed on May 27, 2010 in response to a Final Office Action dated February 19, 2010 and Notice of Appeal filed on May 19, 2010. Reconsideration of the Application, withdrawal of the rejections, and allowance of the claims are respectfully requested.

CERTIFICATE OF TRANSMISSION

In accordance with 37 CFR 1.8, I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 or facsimile transmitted or submitted under electronics filing system to the U.S. Patent and Trademark Office on the date: July 6, 2010 By: Jesse Benshosan Signature: /Jesse Benshosan/

(Appellant, Assignee, or Representative)

I. REAL PARTY IN INTEREST

The real party in interest is International Business Machines (IBM) of Armonk, NY.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-13 and 15-22 are pending.

Claim 14 is cancelled.

Claims 1-13 and 15-22 are rejected.

The Appellant is appealing the rejection of independent claims 1, 2, 7, 8, 13, and 18 (and all other remaining claims that depend from claims 2, 8, 13, and 18 either directly or indirectly through an intervening claim). Claims 1, 2, 7, 8, 13, and 18 are on appeal.

IV. STATUS OF AMENDMENTS

The Examiner issued a non-final Office Action on September 20, 2007. The Appellant responded to this Office Action on February 20, 2008. The Examiner issued a notice of Non-Compliant or Non-Responsive Amendment on May 30, 2008. The Appellant responded to this Notice on June 30, 2008. The Examiner issued a Final Office Action on October 1, 2008. The Appellant responded to this Final Office Action and requested a continue examination on January 2, 2009. The Examiner issued a non-final Office Action on March 17, 2010. The Appellant responded to this non-final Office Action on June 17, 2009. The Examiner issued a notice of Non-Compliant or Non-Responsive Amendment on October 29, 2009. The Appellant responded to this Notice on November 30, 2009. The Examiner issued a Final Office Action dated February 19, 2010.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

This summary references page numbers and paragraph numbers of the Specification as originally filed September 30, 2003.

The pending independent claims under appeal in this case are corresponding apparatus, method, and computer readable storage medium claims. The following identifies the subject matter defined in each of the claims under appeal in the present application.

Independent Claim 1 sets forth the following subject matter.

A) receiving at least one policy definition defined by a user,: See at least FIG. 6 and page 14, lines 12-14.

B) wherein the at least one policy definition includes at least one conditional relationship specification, and: See at least page 4, lines 6-10 and page 29, lines 3-15.

C) wherein the at least one policy definition programmatically specifies relationships between at least two resources in a set of resources in an autonomic computing system and defines at least one desired end state therefore, and: See at least page 3, lines 20-21 to page 4 line 1-10; page 5, lines 15-19 to page 9, line 1 to line 9; and page 10, lines 16-21 to page 11, lines 1-2.

D) wherein the at least one conditional relationship specification indicates a relationship between at least two resources based on a state associated with each of the at least two resources, and: See at least page 27, line 16 to page 30, line 15.

E) wherein the at least on conditional relationship specification comprises at least one conditional statement, and: See at least page 27, line 16 to page 30, line 15.

F) wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources,: See at least page 27, line 16 to page 30, line 15.

G) wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one

desired end state based on the at least one conditional relationship specification;: See at least page 27, line 16 to page 30, line 15.

H) harvesting implicit relationships among the set of resources via self-discovery,: See at least FIG. 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

I) wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources, and: See at least FIG. 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

J) wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships;: See at least FIG. 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

K) determining, by the autonomic computing system, that a state of at least one resource in the set of resources substantially satisfies a predetermined requirement of the at least one conditional relationship specification and dependencies and requirements of the set of implicit relationships that have been harvested,: See at least FIG. 13; page 3, lines 20-21 to page 4 line 1-10; and page 29, lines 3-15.

L) wherein the set of resources includes any resources identified based on the set of implicit relationships that have been harvested;: See at least FIG. 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

M) determining, by the autonomic computing system in response to the state of the at least one resource substantially satisfying the predetermined requirement, that the desired end state can be reached by applying the at least one policy definition conditioned by the at least one

conditional relationship specification; and: See at least FIG. 13; page 3, lines 20-21 to page 4 line 1-10; page 18, lines 11-21 to page 19, lines 1-8.

N) placing the autonomic computing system in the desired end state by applying the at least one policy definition.: See at least page 9, lines 3-9; page 10, lines 16-21 to page 11 lines 1-2; and page 14, lines 11-21 to page 15, lines 1-4.

Independent Claim 2 sets forth the following subject matter.

A) receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and: See at least FIG. 6; page 4, lines 6-10; page 14, lines 12-14; and page 29, lines 3-15.

B) wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system and defines at least one acceptable sub-state and at least one desired end state for the autonomic computing system;: See at least page 3, lines 20-21 to page 4 line 1-10; page 5, lines 15-19 to page 9, line 1 to line 9; and page 10, lines 16-21 to page 11, lines 1-2.

C) determining that the desired end state for the autonomic computing system cannot be reached;: See at least FIG. 13, page 3, lines 20-21; and page 24, lines 8-18.

D) determining that the acceptable sub-state of the desired end state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications; and: See at least FIG. 13, page 3, lines 20-21 to page 4, lines 1-15; and page 28, lines 10-21 to page 29, lines 1-2.

E) placing the autonomic computing system in the acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution.: See at least page 29, line 16 to page 30, line 5.

Independent Claim 7 sets forth the following subject matter.

A) receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and: See at least FIG. 6; page 4, lines 6-10; page 14, lines 12-14; and page 29, lines 3-15.

B) wherein the at least one policy definition programmatically specifies relationships between at least two resources in a set of resources in an autonomic computing system and defines at least one desired end state therefore, and: See at least page 3, lines 20-21 to page 4 line 1-10; page 5, lines 15-19 to page 9, line 1 to line 9; and page 10, lines 16-21 to page 11, lines 1-2.

C) wherein the at least one conditional relationship specification indicates a relationship between at least two resources based on a state associated with each of the at least two resources,: See at least page 27, line 16 to page 30, line 15.

D) wherein the at least on conditional relationship specification comprises at least one conditional statement, and wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources,: See at least page 27, line 16 to page 30, line 15.

E) wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;: See at least page 27, line 16 to page 30, line 15.

F) wherein the policy definition further comprises a set of resource relationships received that only specify relationships associated with a top-most level set of resources in the set of resources,: See at least page 17, lines 2-21.

G) wherein the availability of one or more of the top-most level set of resources is dependent on the availability of one or more resources of a lower level set of resources in a reverse hierarchy of dependencies from top-most level to lowest level set of resources;: See at least page 17, lines 2-21.

H) harvesting implicit relationships among the set of resources via self-discovery.: See at least FIG. 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

I) wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources, and: See at least FIG. 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

J) wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships,: See at least FIG. 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

K) wherein the set of implicit relationships are relationships associated from the top-most level set of resources to a lower level set of resources in the set of resources;: See at least page 17, lines 2-21.

L) determining, by the autonomic computing system, that a state of at least one resource in the set of resources substantially satisfies a predetermined requirement of the at least one conditional relationship specification and dependencies and requirements of the set of implicit relationships that have been harvested;: See at least FIG. 13; page 3, lines 20-21 to page 4 line 1-10; and page 29, lines 3-15.

M) determining, by the autonomic computing system in response to the state of the at least one resource substantially satisfying the predetermined requirement, that the desired end state can be reached by applying the at least one policy definition conditioned by the at least one conditional relationship specification; and: See at least FIG. 13; page 3, lines 20-21 to page 4 line 1-10; page 18, lines 11-21 to page 19, lines 1-8.

N) placing the autonomic computing system in the desired end state by applying the at least one policy definition.: See at least page 9, lines 3-9; page 10, lines 16-21 to page 11 lines 1-2; and page 14, lines 11-21 to page 15, lines 1-4.

Independent Claim 8 sets forth the following subject matter.

A) receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and: See at least FIG. 6; page 4, lines 6-10; page 14, lines 12-14; and page 29, lines 3-15.

B) wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system and defines at least one acceptable sub-state and at least one desired end state for the autonomic computing system;: See at least page 3, lines 20-21 to page 4 line 1-10; page 5, lines 15-19 to page 9, line 1 to line 9; and page 10, lines 16-21 to page 11, lines 1-2.

C) determining that the desired end state for the autonomic computing system cannot be reached;: See at least FIG. 13, page 3, lines 20-21; and page 24, lines 8-18.

D) determining that the acceptable sub-state of the desired end state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications; and: See at least FIG. 13, page 3, lines 20-21 to page 4, lines 1-15; and page 28, lines 10-21 to page 29, lines 1-2.

E) placing the autonomic computing system in the acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution.: See at least page 29, line 16 to page 30, line 5.

Independent Claim 13 sets forth the following subject matter.

A) memory for storing at least one policy definition defined by a user,: See at least FIG. 3 and page 14, lines 12-14.

B) wherein the at least one policy definition includes at least one conditional relationship specification, and: See at least page 4, lines 6-10 and page 29, lines 3-15.

C) wherein the at least one policy definition programmatically specifies relationships between at least two resources in a set of resources in an autonomic computing system and defines at least one desired end state therefore, and: See at least page 3, lines 20-21 to page 4 line 1-10; page 5, lines 15-19 to page 9, line 1 to line 9; and page 10, lines 16-21 to page 11, lines 1-2.

D) wherein the at least one conditional relationship specification indicates a relationship between at least two resources based on a state associated with each of the at least two resources, and: See at least page 27, line 16 to page 30, line 15.

E) wherein the at least on conditional relationship specification comprises at least one conditional statement, wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources,: See at least page 27, line 16 to page 30, line 15.

F) wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;: See at least page 27, line 16 to page 30, line 15.

G) a relationship harvestor for harvesting implicit relationships among the set of resources via self-discovery,: See at least FIGs. 4 and 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

H) wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources, and: See at least FIG. 6; page 7, lines 7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

I) wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships;: See at least FIG. 6; page 7, lines

7-20; page 9, lines 3-20; page 14, lines 11-21 to page 15, lines 1-4; and page 17 lines 11-21 to page 18, lines 1-10.

J) a resource monitor, communicatively coupled with each resource in the autonomic computing system, for monitoring, and communicating data with, each resource in the autonomic computing system;: See at least FIG. 4 and page 14, lines 20-21 to page 15, lines 1-4.

K) an equivalency definer, communicatively coupled with each resource in the autonomic computing system, and with the memory, for defining at least one equivalency representing at least one set of equivalent resources in the autonomic computing system, and storing the at least one equivalency in the memory,: See at least FIG. 4; page 14, lines 14-20 and page 19, lines 14-21 to page 20 lines 1-6.

L) wherein the equivalency defines the at least one set of equivalent resources that can be substituted for one another in accordance with the at least one policy definition that includes at least one conditional relationship specification to arrive at the desired end state;: See at least page 14, lines 14-20 and page 19, lines 14-21 to page 20 lines 1-6; and page 20 lines 7-21 to page 23 lines 1-18.

M) a policy generator, communicatively coupled with the resource monitor and the memory, for providing in the memory a representation of a system-wide graph of available actions and at least one of conditional relationship specifications and alternative relationship specifications, corresponding with resources in the autonomic computing system including any resources identified based on the dependencies and requirements of the set of implicit relationships that have been harvested; and: See at least FIG. 4; page 14, lines 16-21 to page 15, line 1 to 5; page 18, lines 19-21 to page 19 lines 1-2.

N) an automation engine, communicatively coupled with the resource monitor, with at least one resource in the autonomic computing system, and with the memory, for providing available actions as defined by the at least one policy definition to the at least one resource in the autonomic computing system in order for the autonomic computing system to establish and

maintain a desired end state.: See at least FIG. 4 page 9, lines 3-9; page 10, lines 16-21 to page 11 lines 1-2; and page 14, lines 11-21 to page 15, lines 1-4.

Independent Claim 18 sets forth the following subject matter.

A) distributed resources;: See at least FIG. 2 and FIGs. 8-9 and page 8 lines 10-11.

B) an autonomic resource manager, communicatively coupled with the distributed resources, for receiving at least one policy definition defined by a user,: See at least FIGs. 3-4 and 6; page 4, lines 6-10; page 14, lines 12-14; and page 29, lines 3-15.

C) wherein the at least one policy definition includes at least one conditional relationship specification, and: See at least page 4, lines 6-10 and page 29, lines 3-15.

D) wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system and defines at least one acceptable sub-state and at least one desired end state for the autonomic computing system,: See at least page 3, lines 20-21 to page 4 line 1-10; page 5, lines 15-19 to page 9, line 1 to line 9; and page 10, lines 16-21 to page 11, lines 1-2.

E) determining that the desired end state for the autonomic computing system cannot be reached,: See at least FIG. 13, page 3, lines 20-21; and page 24, lines 8-18.

F) determining that acceptable sub-state of the desired end state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications, and: See at least FIG. 13, page 3, lines 20-21 to page 4, lines 1-15; and page 28, lines 10-21 to page 29, lines 1-2.

G) placing the autonomic computing system in acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution.: See at least page 29, line 16 to page 30, line 5.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1, 2, 5-8, 11, 12 are anticipated under 35 U.S.C. §102(b) by Eshghi et al. (U.S. Patent No. 5,893,083).

B. Whether claims 13-21 are unpatentable under 35 U.S.C. 103(a) over Eshghi et al. (U.S. Patent No. 5,893,083) in view of Sankaranarayan (U.S. Pre-Grant Publication No. 2005/0033846).

VII. ARGUMENT

A. WHETHER CLAIMS 1, 2, 5-8, 11, 12 ARE ANTICIPATED UNDER 35 U.S.C. §102(B) BY ESHGHI ET AL. (U.S. PATENT NO. 5,893,083).

I. EXAMINER HAS FAILED TO PROPERLY EXAMINE CLAIM 7

In the Examiner's Office Action of March 17, 2009 and the Examiner's Final Office Action of February 19, 2010, the Examiner rejected independent claim 7 stating:

> Claim 7, lists all the same elements of claim 1, but in a computer readable medium form rather than method form. Therefore, the supporting rationale of the rejection to claim 1 applies equally as well to claim 7

However, claim 7 **does not** include all the same elements of claim 1. Claim 7 includes subject matter not found in claim 1. For example, Claim 7 recites "…wherein the policy definition further comprises a set of resource relationships received that only specify relationships associated with a top-most level set of resources in the set of resources...."; "…wherein the availability of one or more of the top-most level set of resources is dependent on the availability of one or more resources of a lower level set of resources in a reverse hierarchy of dependencies from top-most level to lowest level set of resources…"; and "…wherein the set of implicit relationships are relationships associated from the top-most level set of resources to a lower level set of resources in the set of resources…". Claim 1 does not comprise these claim elements.

The Appellant has consistently informed the Examiner throughout prosecution that claim 7 does not recite the same as claim 1. However, the Examiner has continually ignored the differences between claim 1 and claim 7 and has failed to properly examine at least the claim elements of "…wherein the policy definition further comprises a set of resource relationships received that only specify relationships associated with a top-most level set of resources in the

set of resources...."; "...wherein the availability of one or more of the top-most level set of resources is dependent on the availability of one or more resources of a lower level set of resources in a reverse hierarchy of dependencies from top-most level to lowest level set of resources..."; and "...wherein the set of implicit relationships are relationships associated from the top-most level set of resources to a lower level set of resources in the set of resources...". The Appellant even requested for an Examiner Interview to be held on April 23, 2010 to discuss, among other things, why the Examiner has not given proper weight to these claim elements. The Examiner denied the Appellant's request for an interview.

Therefore, the finality of the present Office Action is improper and a new Office Action should be submitted that properly examines claim 7.

II. ESHGHI FAILS TO TEACH OR SUGGEST EACH AND EVERY ELEMENT OF THE PRESENTLY CLAIMED INVENTION

Eshghi is directed towards a system and method for the management of services provided by a computer system. *Eshghi* teaches that an inferencing engine carries out inferencing operations on a declarative model of a service. The inferencing engine uses facts about the system stored in a fact base. A resident goal store contains declarative definitions of goals which concern availability of services and which it is desirable for the system to continue to satisfy. The service model includes definitions of events which can occur in the system and may affect availability of services, and definitions of actions which can be taken to modify the configuration of the system. *Eshghi* teaches that when an occurrence of an event defined in the service model is reported to the apparatus, the event definition is used to guide analysis of the event report and appropriate updating of the fact base.

Goals which are linked to the updated facts are then examined to assess whether the goals are still satisfied. If a goal is no longer satisfied the service model is searched for actions which can re-configure the system to enable the goal to be re-satisfied. If a goal involves information about an entity in a part of the system managed by a second, different management apparatus, the second apparatus can be requested to establish a sub-goal concerning the status of that entity.

Thereafter, the second apparatus takes appropriate action, autonomously, to keep the sub-goal satisfied, and reports back only if it is unable to satisfy the sub-goal.

In the Examiner's Final Office Action of February 19, 2010, the Examiner rejected independent claim 1 stating that *Eshghi* teaches:

> wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources and wherein the state of one of the at least two resources depends on the state of the other resource (Eshighi: Column 2, lines 55-57. For a service to be available, the system determines the required entities and their relationships.), indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification (Eshighi: Column 2, lines 53-55. The conditional states indicate a decision sequence, as each step of the conditional statements is a decision.);

The Appellant respectfully suggests that *Eshghi* fails to teach or suggest that a policy definition programmatically specifies relationships by....indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification. The Examiner argues that the condition states of *Eshghi* indicate a decision sequence, as each step of the conditional statements is a decision. However, *Eshghi* is only determining whether a condition is true of false. For example, *Eshghi* at col. 9, lines 64-67 clearly shows determining **A if B or C**. In other words, *Eshghi* is merely teaching that A is true if B or C. This in no way is a **decision sequence that is to be followed to reach a desired end state**. These statements of *Eshghi* do not indicate any sequence that is to be followed to reach an end state for the autonomic computing system. Accordingly, the presently claimed invention distinguishes over Eshghi for at least these reasons.

The Examiner also states that *Eshghi* teaches:

> harvesting implicit relationships from among the set of resources via a self-discovery, wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources (Eshighi: Column 14, lines 11-15), and wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships (Eshighi: Column 14, lines 11-15);

Column 14, lines 11-15 of *Eshghi* merely state:

> The facts which may be derived from the information available for the event are implicitly identified in section 170 of the event and may be extracted by application of an appropriate parser as described below.

As can be seen, *Eshghi* only teaches implicitly identifying **facts** that may be extracted by parsing information in section 170 of the event. These facts are therefore part of the program information and are not the same as relationships. A fact, according, to *Eshghi*, is information such as the existence and status of the print scheduler (See *Eshghi* at, for example, col. 6, lines 34-36). As can be seen, a fact in *Eshghi* is clearly not an implicit relationship that indicates one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources. Nowhere does *Eshghi* teach that a fact has anything to do with implicit relationships and resource dependencies. Accordingly, the presently claimed invention distinguishes over *Eshghi* for at least these reasons as well.

With respect to independent claim 2, the Examiner states that *Eshghi* teaches:

> receiving at least one policy definition (Eshghi: Column 2, lines 29-48. The model is equivalent to the policy definition.) defined by a user (Eshghi: Column 15, lines 32-59. The policy definition is at least in part defined by the users, as it is catered to the requirements of the users.), wherein the at least one policy definition includes at least one conditional relationship specification (Eshghi: Column 9, lines 56-60), and wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system (Eshghi: Column 5, lines 39-45) and defines at least one acceptable sub-state (Eshghi: Column 14, lines 60-54) and at least one desired end state for the automatic computing system (Eshghi: Column 2, lines 53-55);
>
> determining that the desired end state for the autonomic computing system cannot be reached (Eshghi: Column 14, lines 60-64);
>
> determining that the acceptable sub-state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications (Eshghi: Column 14, line 64 to Column 15, line 2); and
>
> placing the autonomic computing system in an acceptable state, wherein the acceptable sub state becomes a new end-state in response to the substitution (Eshghi: Column 14, line 64 to Column 15, line 2).

The Appellant respectfully points out that the goal of *Eshghi* is not a "desired end state

for the autonomic computing system". The goal in *Eshghi* taught in the sections cited by the Examiner is a goal for an entity of a service. For example, *Eshghi* at col. 14, line 64 to col. 15, line 2 is for a print spooler entity. If the goal, i.e., that the default print is enabled, of the print spooler cannot be satisfied, i.e., the default printer is disabled, then the default printer can be switched to another printer. Therefore, *Eshghi* is not "placing the autonomic computing system in the acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution", but is merely re-satisfying a goal of an entity of a service model, of the entire system. Accordingly, the presently claimed invention distinguishes over *Eshghi* for at least these reasons.

Independent claim 8 recites similar to independent claim 2, and therefore, the remarks and arguments given above with respect to independent claim 2 are also applicable in support of independent claim 8 and will not be repeated.

With respect to independent claim 7, the Examiner states that independent claim 7 "lists all of the same elements of claim 1..." and applies the supporting rationale of claim 1 to claim 7. However, independent claim 7 includes additional claim elements not found in claim 1, which the Examiner has failed to give a proper examination. For example, claim 7 also recites "...wherein the policy definition further comprises a set of resource relationships received that only specify relationships associated with a top-most level set of resources in the set of resources..."; "...wherein the availability of one or more of the top-most level set of resources is dependent on the availability of one or more resources of a lower level set of resources in a reverse hierarchy of dependencies from top-most level to lowest level set of resources..."; and "...wherein the set of implicit relationships are relationships associated from the top-most level set of resources to a lower level set of resources in the set of resources...".

Eshghi merely teaches a declarative model that specifies the requirements needing to be met for a service to be available. Nowhere does Eshghi teach or suggest "...wherein the policy definition further comprises a set of resource relationships received that only specify relationships associated with a top-most level set of resources in the set of resources..."; "...wherein the availability of one or more of the top-most level set of resources is dependent on

the availability of one or more resources of a lower level set of resources in a reverse hierarchy of dependencies from top-most level to lowest level set of resources..."; and "...wherein the set of implicit relationships are relationships associated from the top-most level set of resources to a lower level set of resources in the set of resources...". In fact, Eshghi is completely silent with respect to these claim elements. Accordingly, the presently claimed invention distinguishes over Eshghi for at least these reasons as well (and the reasons given above with respect to claim 1 were similar subject matter exists).

Therefore, in view of the remarks and arguments given above independent claims 1, 2, 8, and 7 (and their dependent claims) distinguish over the *Eshghi* reference. In view of the foregoing remarks and arguments the rejection of claims 1, 2, 5-8, 11, 12 should be reversed.

B. WHETHER CLAIMS 13-21 ARE UNPATENTABLE UNDER 35 U.S.C. 103(A) OVER ESHGHI ET AL. (U.S. PATENT NO. 5,893,083) IN VIEW OF SANKARANARAYAN (U.S. PRE-GRANT PUBLICATION NO. 2005/0033846)

Sankaranarayan is directed towards a resource management architecture for managing resources in a computer system. The system of *Sankaranarayan* includes a resource manager and multiple resource providers that support one or more resource consumers such as a system component or application. Each provider is associated with a resource and acts as the manager for the resource when interfacing with the resource manager. The resource manager arbitrates access to the resources provided by the resource providers on behalf of the consumers. A policy manager sets various policies that are used by the resource manager to allocate resources. One policy is a priority-based policy that distinguishes among which applications and/or users have priority over others to use the resources.

Sankaranarayan also teaches that a resource consumer creates an "activity" at the resource manager and builds one or more "configurations" that describe various sets of preferred resources required to perform the activity. Each resource consumer can specify one or more configurations for each activity. If multiple configurations are specified, the resource consumer can rank them according to preference. This allows the resource consumers to be dynamically changed from one configuration to another as operating conditions change.

Claim 13 recites similar to claim 1 and claim 18 recites similar to claim 2, which have already been discussed above. Therefore, the remarks and arguments made above with respect to claims 1 and 2 and *Eshghi* are applicable here and will not be repeated.

With respect to claim 13, the Examiner states that *Sankaranarayan* teaches:

> an equivalency definer, communicatively coupled with each resource in the autonomic computing system, and with the memory, for defining at least one equivalency representing at least one set of equivalent resources in the autonomic computing system, and storing the at least one equivalency in the memory (Sankaranarayan: Paragraph [0079]. A resource quantifier 106 that determines the amount of resource available for allocation by the resource manager 102 which maintains this information.);

However, paragraph [0079] of *Sankaranarayan* merely states:

> Each provider 104 has a resource quantifier 106 that determines the amount of resource available for allocation by the resource manager 102. The resource quantifier 106 is configured to calculate the availability in different ways depending upon how the quantity of any given resource is measured. One way is to keep a finite count. For instance, a resource quantifier 106 for a provider of tuning resources may be implemented as a counter that identifies how many tuners are free to be used.

This "counting" of the number of resources that are the same does not teach or suggest" defining at least one equivalency representing at least one set of equivalent resources in the autonomic computing system". Accordingly, the presently claimed invention distinguishes over *Sankaranarayan* for at least these reasons.

The Examiner also states that *Sankaranarayan* teaches:

> an automation engine, communicatively coupled with the resource monitor, with at least one resource in the autonomic computing system, and with the memory, for providing available actions as defined by the at least one policy definition to the at least one resource in the in the autonomic computing system in order for the autonomic computing system to establish and maintain a desired end state (Sankaranarayan: Fig. 18, 1810 and Paragraph [0208], lines 1-5. The dispatch engine after receiving the activity event notifications from the resource manager dispatches further actions to be performed to satisfy the requirements.)

Nowhere does *Sankaranarayan* teach or suggest "providing available actions as defined by the at least one policy definition to the at least one resource in the autonomic computing system in order for the autonomic computing system to establish and maintain a desired end state". *Sankaranarayan* only teaches that notifications are sent to policies (which are policies for allocating resources such as conflict resolution policies). Therefore, *Sankaranarayan* fails to teach or suggest "providing available actions as defined by the at least one policy definition to the at least one resource in the autonomic computing system in order for the autonomic computing system to establish and maintain a desired end state". Accordingly, the teachings of *Sankaranarayan* do not teach or suggest the presently claimed invention for at least these reasons as well.

The Examiner correctly states that *Sankaranarayan* fails to teach or suggest:

> that the memory for storing at least one policy definition is defined by a user, wherein at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system, and defines at least one desired end state therefor; and wherein the at least one conditional relationship specification indicates a relationship between at least two resources based on a state associated with each of the at least two resources, wherein the state of one of the at least two resources depends on the state of the other resource, and wherein the at least one conditional relationship specification comprises at least one conditional statement, and wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;
>
> a relationship harvestor for harvesting implicit relationships from among the set of resources via a self-discovery, wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources, and wherein self-discovery includes automatically discovering the set of implicit relationships without the user specifying the implicit relationships;
>
> wherein the equivalency defines the at least one set of equivalent resources that can be substituted for one another in accordance with the at least one policy definition that includes at least one conditional relationship specification to arrive at the desired end state; and
>
> a policy generator, communicatively coupled with the resource monitor and the memory, for providing in the memory a representation of a system-wide

> graph of available actions and at least one of: conditional relationship specifications, and alternative relationship specifications, corresponding with resources in the autonomic computing system including any resources identified based on the dependencies and requirements of the set of implicit relationships that have been harvested.

The Examiner states that *Eshghi* teaches these claim elements. However, these claim elements are similar to the claim elements already discussed above with respect to claims 1, 2, 7, and 8. As shown above, *Eshghi* fails to teach or suggest one or more of these claim elements. In addition nowhere does *Eshghi* teach or suggest "...providing in the memory a representation of a system-wide graph of available actions and at least one of: conditional relationship specifications, and alternative relationship specifications, corresponding with resources in the autonomic computing system including any resources identified based on the dependencies and requirements of the set of implicit relationships that have been harvested". In fact, *Eshghi* is completely silent withre respect to a "...system wide graphof available actions and at least one of: conditional relationship specifications, and alternative relationship specifications, corresponding with resources in the autonomic computing system including any resources identified based on the dependencies and requirements of the set of implicit relationships that have been harvested".

Accordingly, the presently claimed invention distinguishes over *Sankaranarayan* and *Eshghi* individiually and/or in combination with each other for at least these reasons.

With respect to claim 18, the Examiner correctly states that *Sankaranarayan* fails to teach or suggest

> receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system and defines at least one acceptable sub-state and at least one desired end state for the autonomic computing system; and
>
> the alternative relationship specifications comprise at least one of policy definitions and conditional relationship specifications that are applied when the complete desired end state of the system cannot be met.

The Examiner goes on to state that "However, Eshghi discloses these limitations for substantially similar reasons as presented with regard to claim 3". The Appellant believes that

the Examiner stated "claim 3" in error and intended to state "claim 2". As discussed above with respect to claim 2, the goal of *Eshghi* is not a "desired end state for the autonomic computing system". The goal in *Eshghi* taught in the sections cited by the Examiner is a goal for an entity of a service. For example, *Eshghi* at col. 14, line 64 to col. 15, line 2 is for a print spooler entity. If the goal, i.e., that the default print is enabled, of the print spooler cannot be satisfied, i.e., the default printer is disabled, then the default printer can be switched to another printer. Therefore, *Eshghi* is not "placing the autonomic computing system in the acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution", but is merely re-satisfying a goal of an entity of a service model, of the entire system.

Accordingly, the presently claimed invention distinguishes over *Sankaranarayan* and *Eshghi* individiually and/or in combination with each other for at least these reasons as well.

Therefore, in view of the remarks and arguments given above independent claims 13 and 18 (and their dependent claims) distinguish over the *Sankaranarayan* and *Eshghi* references individually and/or in combination with each other. In view of the foregoing remarks and arguments the rejection of claims 13-21 should be reversed.

CONCLUSION

For the reasons stated above, the Appellant respectfully contends that each claim is patentable. Therefore, reversal of all rejections and the objection is courteously solicited.

The Commissioner is hereby authorized to charge any fees that may be required or credit any overpayment to Deposit Account **50-1556**.

Respectfully submitted,

Dated: 07/06/10

By: /Jose Gutman/

Jose Gutman
Reg. No. 35,171
Attorney for Appellant

By: /Thomas S. Grzesik/

Thomas S. Grzesik, Reg. No. 54,139
Attorney for Appellant

Fleit, Gibbons, Gutman,
Bongini & Bianco PL
551 N.W. 77th Street, Suite 111
Boca Raton, FL 33487
Tel. (561) 989-9811
Fax (561) 989-9812

VIII. CLAIMS APPENDIX

1. A method comprising:

receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between at least two resources in a set of resources in an autonomic computing system and defines at least one desired end state therefore, and wherein the at least one conditional relationship specification indicates a relationship between at least two resources based on a state associated with each of the at least two resources, and wherein the at least on conditional relationship specification comprises at least one conditional statement, and wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources, wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;

harvesting implicit relationships among the set of resources via self-discovery, wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources, and wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships;

determining, by the autonomic computing system, that a state of at least one resource in the set of resources substantially satisfies a predetermined requirement of the at least one conditional relationship specification and dependencies and requirements of the set of implicit relationships that have been harvested, wherein the set of resources includes any resources identified based on the set of implicit relationships that have been harvested;

determining, by the autonomic computing system in response to the state of the at least one resource substantially satisfying the predetermined requirement, that the desired end state can be reached by applying the at least one policy definition conditioned by the at least one conditional relationship specification; and

placing the autonomic computing system in the desired end state by applying the at least one policy definition.

2. A method comprising:

receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system and defines at least one acceptable sub-state and at least one desired end state for the autonomic computing system;

determining that the desired end state for the autonomic computing system cannot be reached;

determining that the acceptable sub-state of the desired end state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications; and

placing the autonomic computing system in the acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution.

3. The method of claim 2, wherein the priority ratings comprise an attribute assigned to a policy definition that determines at least one of a selection of conflicting policy definitions and a sequence for applying the policy definitions.

4. The method of claim 3, wherein the attribute assigned to the policy definition is one of the following: mandatory, a numerical value, and not required.

5. The method of claim 2, wherein the conditional relationship specifications comprise policy definitions that are applied when the state of a specified resource meets a predetermined requirement.

6. The method of claim 2, wherein the alternative relationship specifications comprise at least one of policy definitions, and conditional relationship specifications, that are applied when the state of a specified resource does not meet a predetermined requirement.

7. A computer readable storage medium comprising computer instructions for performing the following:

receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between at least two resources in a set of resources in an autonomic computing system and defines at least one desired end state therefore, and wherein the at least one conditional relationship specification indicates a relationship between at least two resources based on a state associated with each of the at least two resources, wherein the at least on conditional relationship specification comprises at least one conditional statement, and wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources, wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;

wherein the policy definition further comprises a set of resource relationships received that only specify relationships associated with a top-most level set of resources in the set of resources, wherein the availability of one or more of the top-most level set of resources is dependent on the availability of one or more resources of a lower level set of resources in a reverse hierarchy of dependencies from top-most level to lowest level set of resources;

harvesting implicit relationships among the set of resources via self-discovery, wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources, and wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships, wherein the set of implicit relationships are relationships associated from the top-most level set of resources to a lower level set of resources in the set of resources;

determining, by the autonomic computing system, that a state of at least one resource in the set of resources substantially satisfies a predetermined requirement of the at least one conditional relationship specification and dependencies and requirements of the set of implicit relationships that have been harvested;

determining, by the autonomic computing system in response to the state of the at least one resource substantially satisfying the predetermined requirement, that the desired end state can be reached by applying the at least one policy definition conditioned by the at least one conditional relationship specification; and

placing the autonomic computing system in the desired end state by applying the at least one policy definition.

8. A computer readable storage medium comprising computer instructions for performing the following:

receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system and defines at least one acceptable sub-state and at least one desired end state for the autonomic computing system;

determining that the desired end state for the autonomic computing system cannot be reached;

determining that the acceptable sub-state of the desired end state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications; and

placing the autonomic computing system in the acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution.

9. The computer readable medium of claim 8, wherein the priority ratings comprise an attribute assigned to a policy definition that determines a sequence for applying the policy definition.

10. The computer readable medium of claim 9, wherein the attribute assigned to the policy definition is one of the following: mandatory, a numerical value, and not required.

11. The computer readable medium of claim 8, wherein the conditional relationship specifications comprise policy definitions that are applied when the state of a specified resource meets a predetermined requirement.

12. The computer readable medium of claim 8, wherein the alternative relationship specifications comprise at least one of policy definitions and conditional relationship specifications that are applied when the state of a specified resource does not meet a predetermined requirement.

13. An autonomic resource manager for an autonomic computing system, the autonomic resource manager comprising:

memory for storing at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between at least two resources in a set of resources in an autonomic computing system and defines at least one desired end state therefore, and wherein the at least one conditional relationship specification indicates a relationship between at least two resources based on a state associated with each of the at least two resources, and wherein the at least on conditional relationship specification comprises at least one conditional statement, wherein the at least one policy definition programmatically specifies relationships by using states associated with the at least two resources, wherein the state of one of the at least two resources depends on the state of the other resource, and indicating a decision sequence that is to be followed to reach the at least one desired end state based on the at least one conditional relationship specification;

a relationship harvestor for harvesting implicit relationships among the set of resources via self-discovery, wherein the set of implicit relationships at least indicate one or more of a set of resource dependencies for at least one resource in the set of resources and location requirements for at least one resource in the set of resources, and wherein self-discovery includes automatically discovering the set of implicit relationships without the user explicitly specifying the implicit relationships;

a resource monitor, communicatively coupled with each resource in the autonomic computing system, for monitoring, and communicating data with, each resource in the autonomic computing system;

an equivalency definer, communicatively coupled with each resource in the autonomic computing system, and with the memory, for defining at least one equivalency representing at

least one set of equivalent resources in the autonomic computing system, and storing the at least one equivalency in the memory, wherein the equivalency defines the at least one set of equivalent resources that can be substituted for one another in accordance with the at least one policy definition that includes at least one conditional relationship specification to arrive at the desired end state;

a policy generator, communicatively coupled with the resource monitor and the memory, for providing in the memory a representation of a system-wide graph of available actions and at least one of conditional relationship specifications and alternative relationship specifications, corresponding with resources in the autonomic computing system including any resources identified based on the dependencies and requirements of the set of implicit relationships that have been harvested; and

an automation engine, communicatively coupled with the resource monitor, with at least one resource in the autonomic computing system, and with the memory, for providing available actions as defined by the at least one policy definition to the at least one resource in the autonomic computing system in order for the autonomic computing system to establish and maintain a desired end state.

14. (Cancelled)

15. The autonomic resource manager of claim 13, wherein the priority ratings comprise an attribute assigned to a policy definition that determines a sequence for applying the policy definition.

16. The autonomic resource manager of claim 13, wherein the conditional relationship specifications comprise policy definitions that are applied if the state of a specified resource meets a predetermined requirement.

17. The autonomic resource manager of claim 13, the alternative relationship specifications comprise at least one of policy definitions and conditional relationship specifications that are applied when the complete desired end state of the system cannot be met.

18. An autonomic computing system, comprising:

distributed resources; and

an autonomic resource manager, communicatively coupled with the distributed resources, for receiving at least one policy definition defined by a user, wherein the at least one policy definition includes at least one conditional relationship specification, and wherein the at least one policy definition programmatically specifies relationships between resources in an autonomic computing system and defines at least one acceptable sub-state and at least one desired end state for the autonomic computing system, determining that the desired end state for the autonomic computing system cannot be reached, determining that acceptable sub-state of the desired end state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications, and placing the autonomic computing system in acceptable sub-state as a substitution for the desired end-state, wherein the acceptable sub-state becomes a new end-state in response to the substitution.

19. The autonomic computing system of claim 18, wherein the priority ratings comprise an attribute assigned to a policy definition that determines a sequence for applying the policy definition to the operation of the distributed resources.

20. The autonomic computing system of claim 18, wherein the conditional relationship specifications comprise policy definitions that are applied if the state of a specified resource meets a predetermined requirement.

21. The autonomic computing system of claim 18, wherein the alternative relationship specifications comprise at least one of policy definitions and conditional relationship specifications that are applied when the complete desired end state of the system cannot be met.

22. The method of claim 1, further comprising:

activating the at least one conditional relationship specification when the state of at least one of the at least two resources has been reached; and

dynamically adjusting the policy definition at runtime based on the at least one conditional relationship specification that has been activated.

IX. EVIDENCE APPENDIX

NONE

X. RELATED PROCEEDINGS APPENDIX

NONE